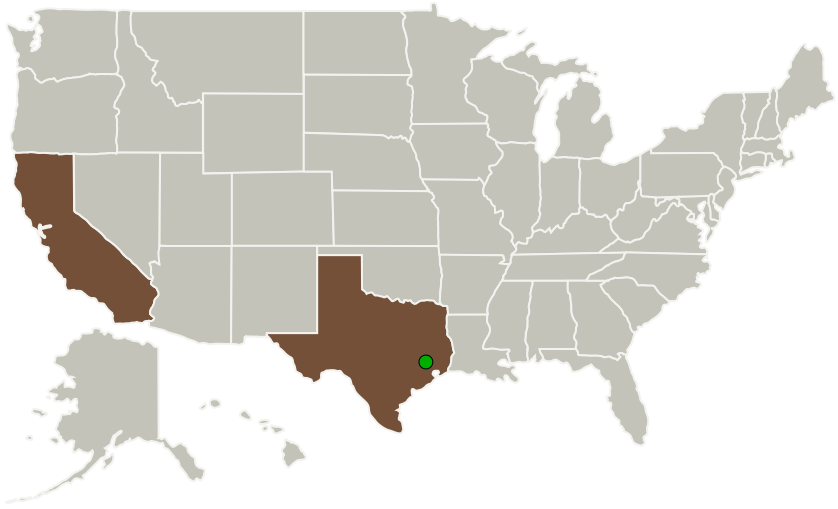
Wireless Sensor Piconet Radio (WiSPiR), Phase I

Completed Technology Project (2016 - 2016)

Project Introduction

We propose to develop a suite of wireless interconnect modules and the associated technologies. The interconnect technology will be designed with radiation tolerance in mind for space use but may also be applicable to aviation. The topology will be flexible enough to support the needs of both low rate, low power nodes, as well as high speed, higher power nodes. Our proposed architecture is modeled after the Aerospace Vehicle Systems Institute's (AVSI) Wireless Avionics Intra-Communications (WAIC). Power estimates range from 100 mW while active for those nodes connecting to sensors/actuators, and 1 W while active for those operating as masters on their scatternet. The volume estimate for all nodes is currently approximately 1.75 cm^3, with a maximum linear dimension of 25 mm, including shielding. External components are minimized through clever use of printed circuit board technology.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Innoflight, Inc.	Lead Organization	Industry Veteran-Owned Small Business (VOSB)	San Diego, California
Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

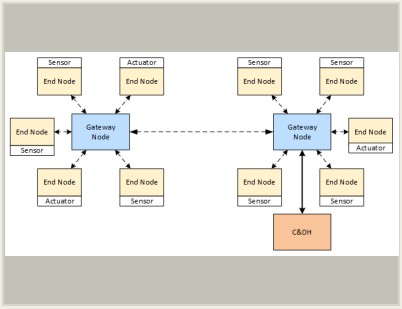


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Table of Contents

Small Business Innovation Research/Small Business Tech Transfer

Wireless Sensor Piconet Radio (WiSPiR), Phase I

Completed Technology Project (2016 - 2016)

Primary U.S. Work Locations	
California	Texas

Project Transitions

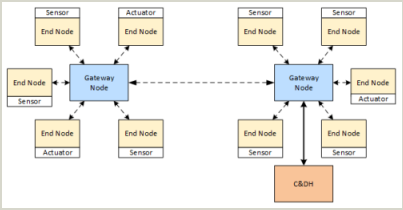
June 2016: Project Start

December 2016: Closed out

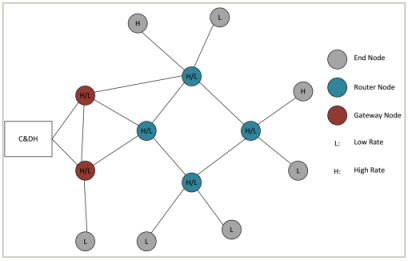
Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139664)*

Images



Briefing Chart Image
Wireless Sensor Piconet Radio (WiSPiR), Phase I
(https://techport.nasa.gov/image/135654)



Final Summary Chart Image
Wireless Sensor Piconet Radio (WiSPiR), Phase I Project Image
(https://techport.nasa.gov/image/134615)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Innoflight, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

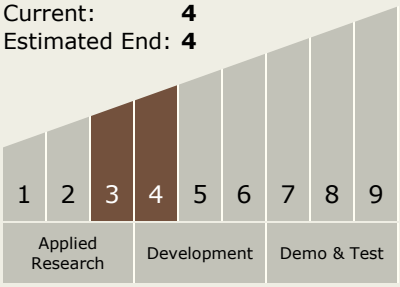
Carlos Torrez

Principal Investigator:

Joseph Koeniger

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Wireless Sensor Piconet Radio (WiSPiR), Phase I

Completed Technology Project (2016 - 2016)

Technology Areas

Primary:

- TX02 Flight Computing and Avionics
  - TX02.1 Avionics Component Technologies
    - TX02.1.8 Wireless Avionics Technologies

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System